TOCUMEN PM	
Latitude = 9.05 N	WMO No. 787920
Longitude = 79.37 W	Elevation = 36 feet
Period of Record = 1973 to 1996	Average Pressure = 29.70 inches Hg

Design Criteria Data

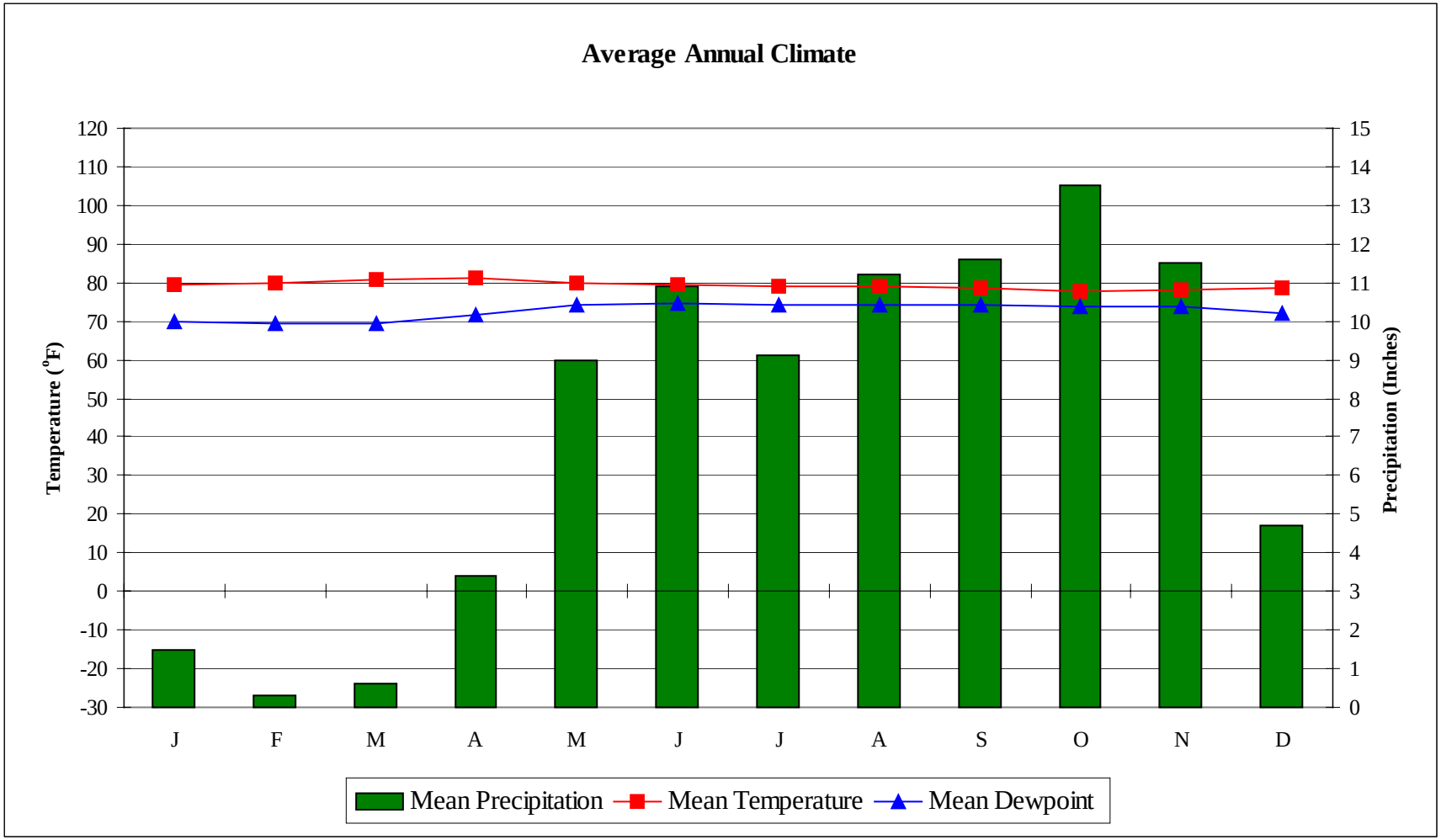
		Mean Coincident (Average) Values			
Dry Bulb Temperature (T)	**Design Value (^oF)**	Wet Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	95	78	120	9.4	NNE
0.4% Occurrence	93	78	119	10.2	NNE
1.0% Occurrence	91	77	120	9.8	NNE
2.0% Occurrence	91	77	120	9.8	NNE
Mean Daily Range	15	-	-	-	-
97.5% Occurrence	72	71	115	1.2	WNW
99.0% Occurrence	70	68	102	0.7	WNW
99.6% Occurrence	68	67	97	0.5	WNW
Median of Extreme Lows	64	63	86	0.3	WNW
		Mean Coincident (Average) Values			
Wet Bulb Temperature (T_{wb})	**Design Value (^oF)**	Dry Bulb Temperature (^oF)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	85	88	172	7.5	S
0.4% Occurrence	82	88	151	6.2	S
1.0% Occurrence	81	88	146	6.1	S
2.0% Occurrence	80	87	141	6.1	S
		Mean Coincident (Average) Values			
Humidity Ratio (HR)	**Design Value (gr/lb)**	Dry Bulb Temperature (^oF)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Median of Extreme Highs	172	86	1.12	7.5	S
0.4% Occurrence	151	85	0.99	5.3	S
1.0% Occurrence	151	85	0.99	5.3	S
2.0% Occurrence	143	83	0.94	4.9	S
Air Conditioning/		$T \geq 93^oF$	$T \geq 80^oF$	$T_{wb} \geq 73^oF$	$T_{wb} \geq 67^oF$
Humid Area Criteria	# of Hours	38	3592	6657	8540

Other Site Data

Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75^oF-RH 60% Latent + Sensible
10	N/A	N/A	18.1 + 3.8
Ground Water Temperature (^oF) 50 Foot Depth *	**Frost Depth 50 Year Recurrence (in.)**	**Ground Snow Load 50 Year Recurrence (lb/ft^2)**	**Average Annual Freeze-Thaw Cycles (#)**
81.8	N/A	N/A	0

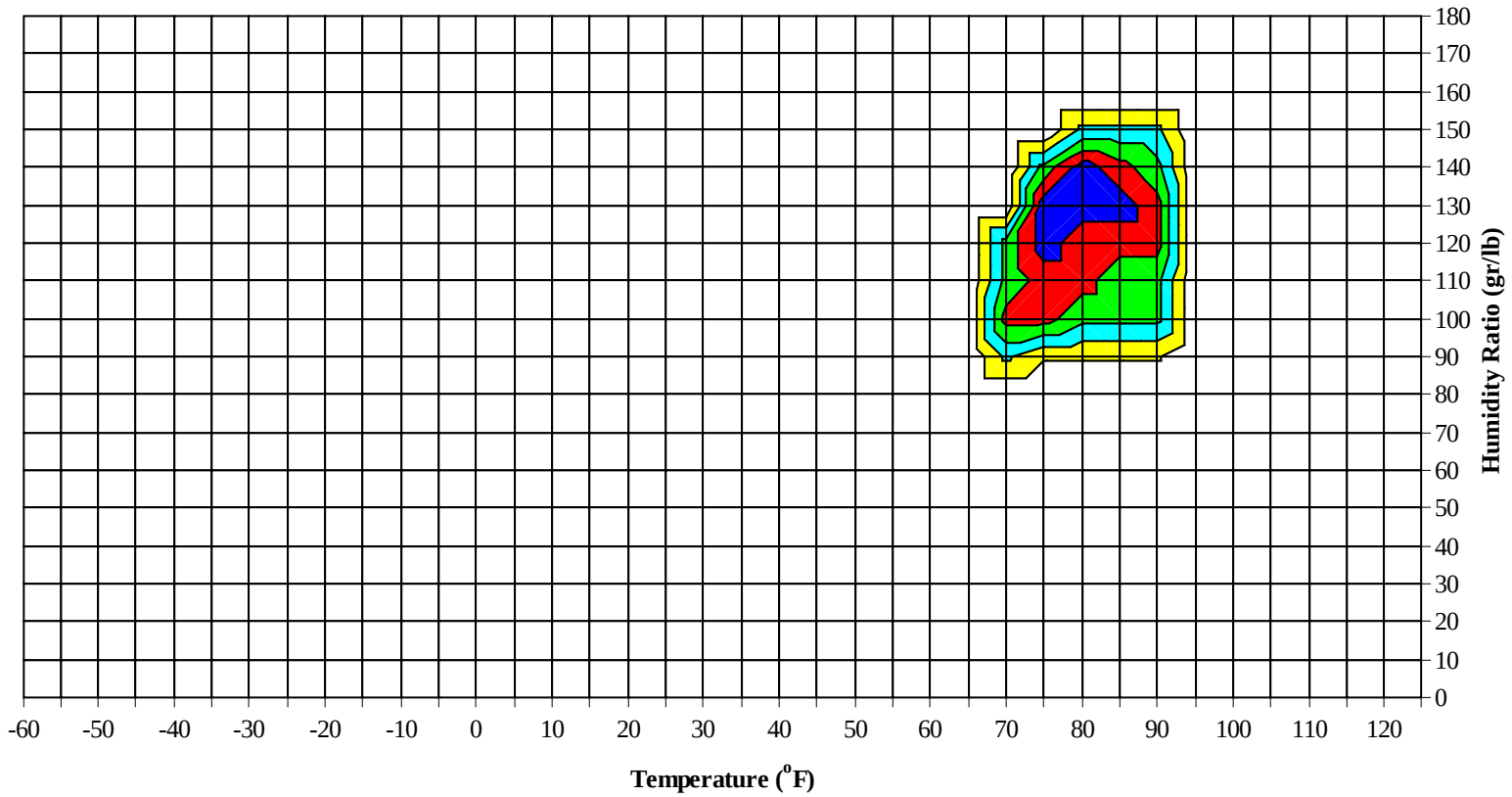
*Note: Temperatures at greater depths can be estimated by adding 1.5^oF per 100 feet additional depth.

TOCUMEN PM WMO No. 787920



TOCUMEN PM WMO No. 787920

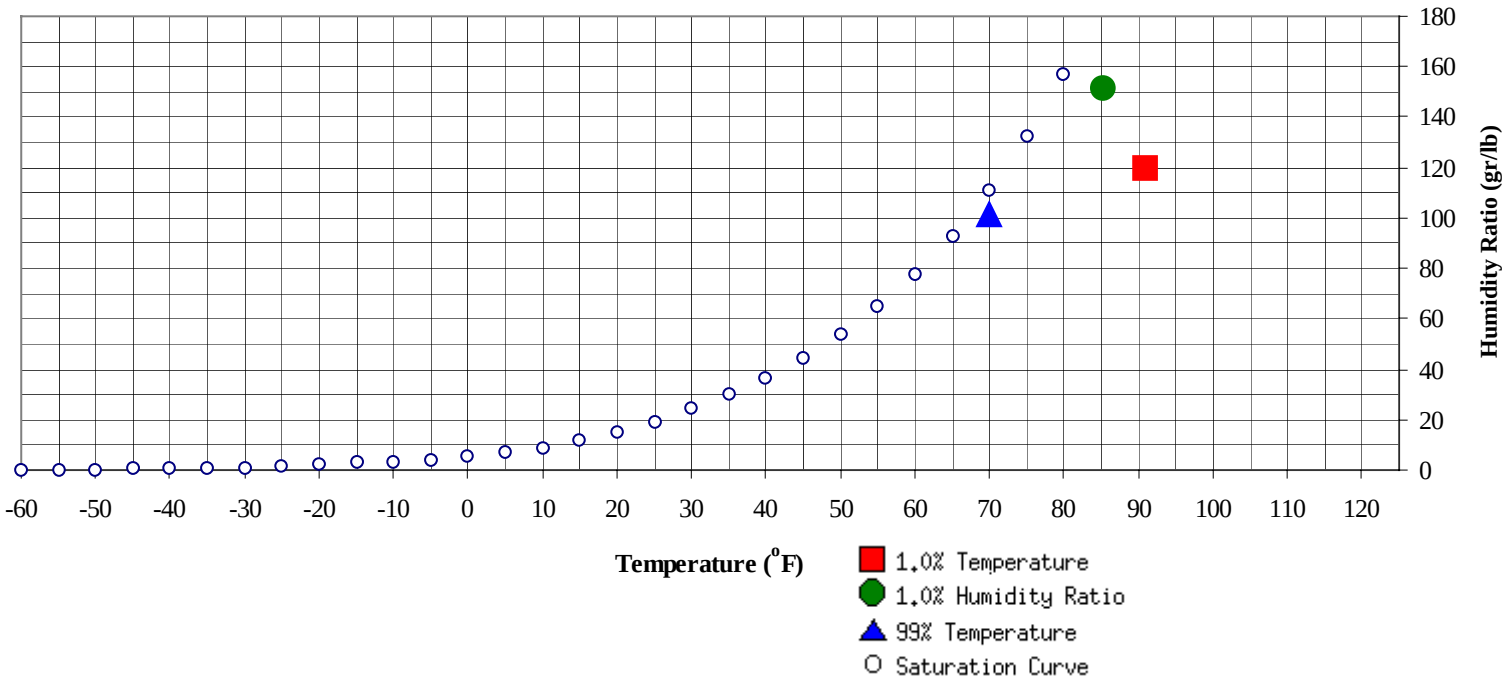
Long Term Psychrometric Summary



50% of all observations
80% of all observations
95% of all observations
97.5% of all observations
99% of all observations

TOCUMEN PM WMO No. 787920

Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)
99% Dry Bulb	70	101.8	32.7

	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
1.0% Humidity Ratio	151.2	85.3	80.6	78.8	44.2

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	91	120	77.4	40.7

TOCUMEN PM WMO No. 787920

Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	January Hour Group (LST) 01 To 08	January 09 To 16	January 17 To 00	January Total Obs	January MCWB (°F)	February Hour Group (LST) 01 To 08	February 09 To 16	February 17 To 00	February Total Obs	February MCWB (°F)	March Hour Group (LST) 01 To 08	March 09 To 16	March 17 To 00	March Total Obs	March MCWB (°F)
95 / 99	0	0		0	78.0		0		0	76.7		1		1	77.9
90 / 94	0	52	1	53	76.4		69	3	72	75.7	0	99	5	104	75.8
85 / 89	0	119	20	139	75.5		96	24	120	74.7	0	94	32	125	74.9
80 / 84	3	64	68	136	74.2	6	51	73	131	73.5	12	51	94	157	73.7
75 / 79	67	13	120	199	72.3	66	8	101	176	71.7	110	4	101	215	72.1
70 / 74	155	0	39	194	69.9	132	0	22	154	69.6	110	0	16	125	69.7
65 / 69	23	0	0	23	66.7	18	0	0	18	66.3	16		0	16	66.4
60 / 64	1			1	63.2	1			1	63.0	1			1	62.9

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

TOCUMEN PM WMO No. 787920

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	April Hour Group (LST) 01 To 08	April 09 To 16	April 17 To 00	April Total Obs	April MCWB (°F)	May Hour Group (LST) 01 To 08	May 09 To 16	May 17 To 00	May Total Obs	May MCWB (°F)	June Hour Group (LST) 01 To 08	June 09 To 16	June 17 To 00	June Total Obs	June MCWB (°F)
95 / 99		2	0	2	76.9		0		0	78.7		0		0	81.0
90 / 94	0	102	8	110	76.7	0	39	3	41	78.4		22	1	23	79.8
85 / 89	0	77	29	106	76.1	0	80	13	93	78.1	0	65	6	71	79.0
80 / 84	21	47	101	169	74.8	13	99	86	198	76.8	6	109	68	184	77.3
75 / 79	130	11	96	236	73.4	184	30	141	355	74.9	178	41	151	370	75.1
70 / 74	88	1	7	95	70.6	50	1	6	57	72.0	56	3	14	72	72.2
65 / 69	2		0	2	66.3	0			0	68.0					
60 / 64	0			0	62.0										

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

TOCUMEN PM WMO No. 787920

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	July Hour Group (LST) 01 To 08	July 09 To 16	July 17 To 00	July Total Obs	July MCWB (°F)	August Hour Group (LST) 01 To 08	August 09 To 16	August 17 To 00	August Total Obs	August MCWB (°F)	September Hour Group (LST) 01 To 08	September 09 To 16	September 17 To 00	September Total Obs	September MCWB (°F)
95 / 99		0		0	82.3		0		0	82.0		0	0	0	82.0
90 / 94	0	30	2	32	79.7	0	27	1	28	79.8		14	0	14	80.2
85 / 89	0	72	11	83	78.8	0	67	8	75	78.8	0	59	3	61	78.8
80 / 84	3	104	65	172	77.1	3	106	60	169	77.3	4	119	51	174	77.2
75 / 79	147	38	155	340	74.8	151	43	162	357	74.9	142	45	168	354	74.9
70 / 74	98	4	15	117	72.1	94	5	17	115	72.1	94	4	19	117	72.1
65 / 69						0			0	68.0	0			0	65.0
60 / 64															

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

TOCUMEN PM WMO No. 787920

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)

Period of Record = 1973 to 1996

Temperature Range (°F)	October Hour Group (LST) 01 To 08	October Hour Group (LST) 09 To 16	October Hour Group (LST) 17 To 00	October Total Obs	October MCWB (°F)	November Hour Group (LST) 01 To 08	November Hour Group (LST) 09 To 16	November Hour Group (LST) 17 To 00	November Total Obs	November MCWB (°F)	December Hour Group (LST) 01 To 08	December Hour Group (LST) 09 To 16	December Hour Group (LST) 17 To 00	December Total Obs	December MCWB (°F)
95 / 99		0		0	80.0	0			0	81.0					
90 / 94	0	7	0	7	79.2	0	16	0	16	79.1	0	33	0	33	77.7
85 / 89	0	49	1	50	78.6	0	61	4	65	78.2	0	105	10	115	76.9
80 / 84	3	133	33	169	77.1	2	116	38	156	76.9	2	85	58	145	75.8
75 / 79	120	55	187	363	74.8	114	45	172	331	74.7	75	25	142	242	73.8
70 / 74	125	4	27	156	72.0	123	2	27	151	72.0	162	1	39	201	70.9
65 / 69	0	0	0	0	68.0	1		0	1	67.0	9		0	9	66.9
60 / 64											0			0	63.3

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

TOCUMEN PM WMO No. 787920

Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

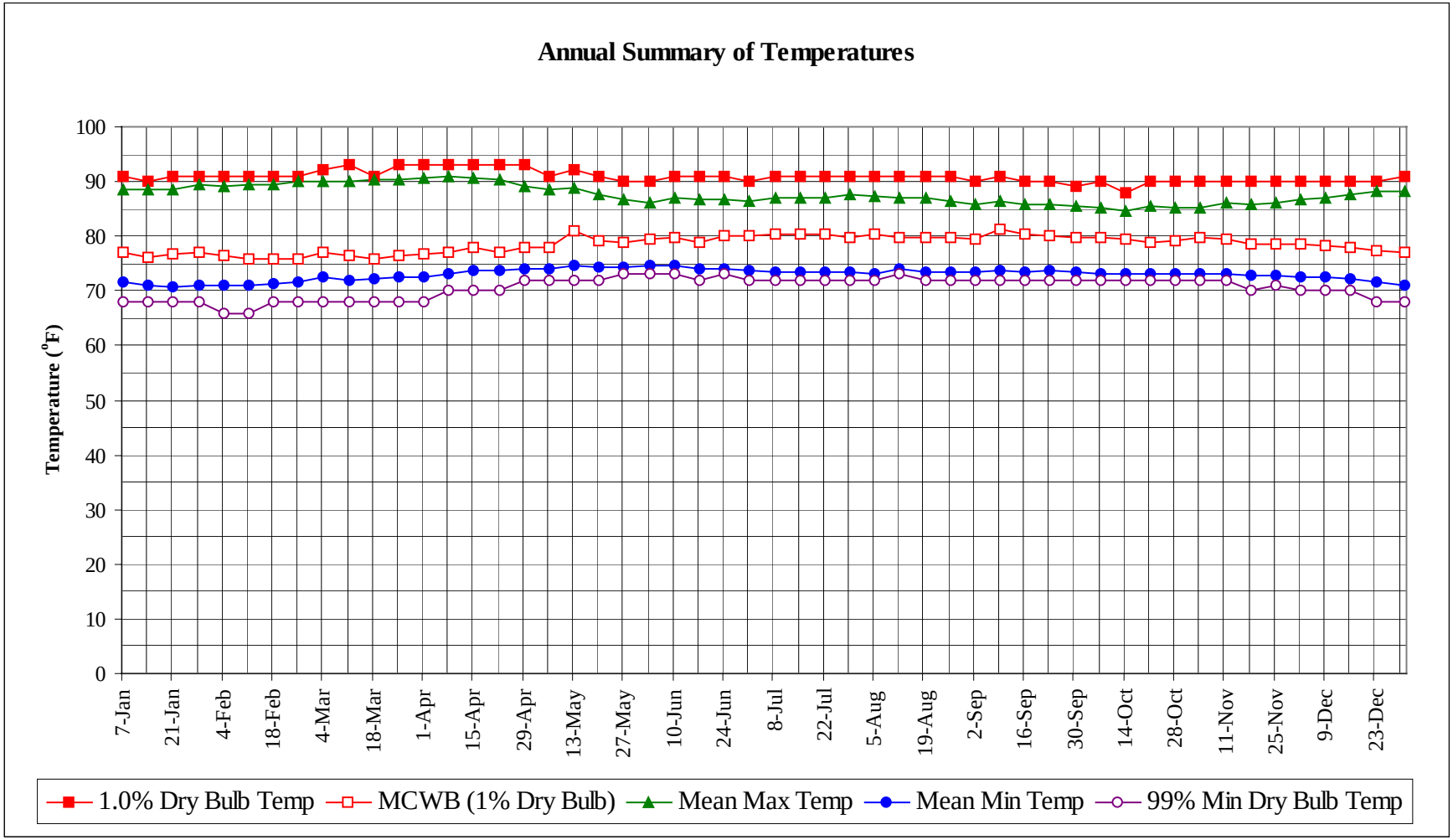
Period of Record = 1973 to 1996

Annual Totals

Temperature Range (°F)	Hour Group (LST) 01 To 08	09 To 16	17 To 00	Total Obs	MCWB (°F)
95 / 99	0	4	0	4	78.0
90 / 94	1	512	25	538	77.2
85 / 89	1	947	159	1108	76.9
80 / 84	79	1079	795	1953	76.1
75 / 79	1483	353	1695	3530	74.2
70 / 74	1285	25	245	1554	71.1
65 / 69	70	0	1	71	66.5
60 / 64	2			2	63.0

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

TOCUMEN PM WMO No. 787920



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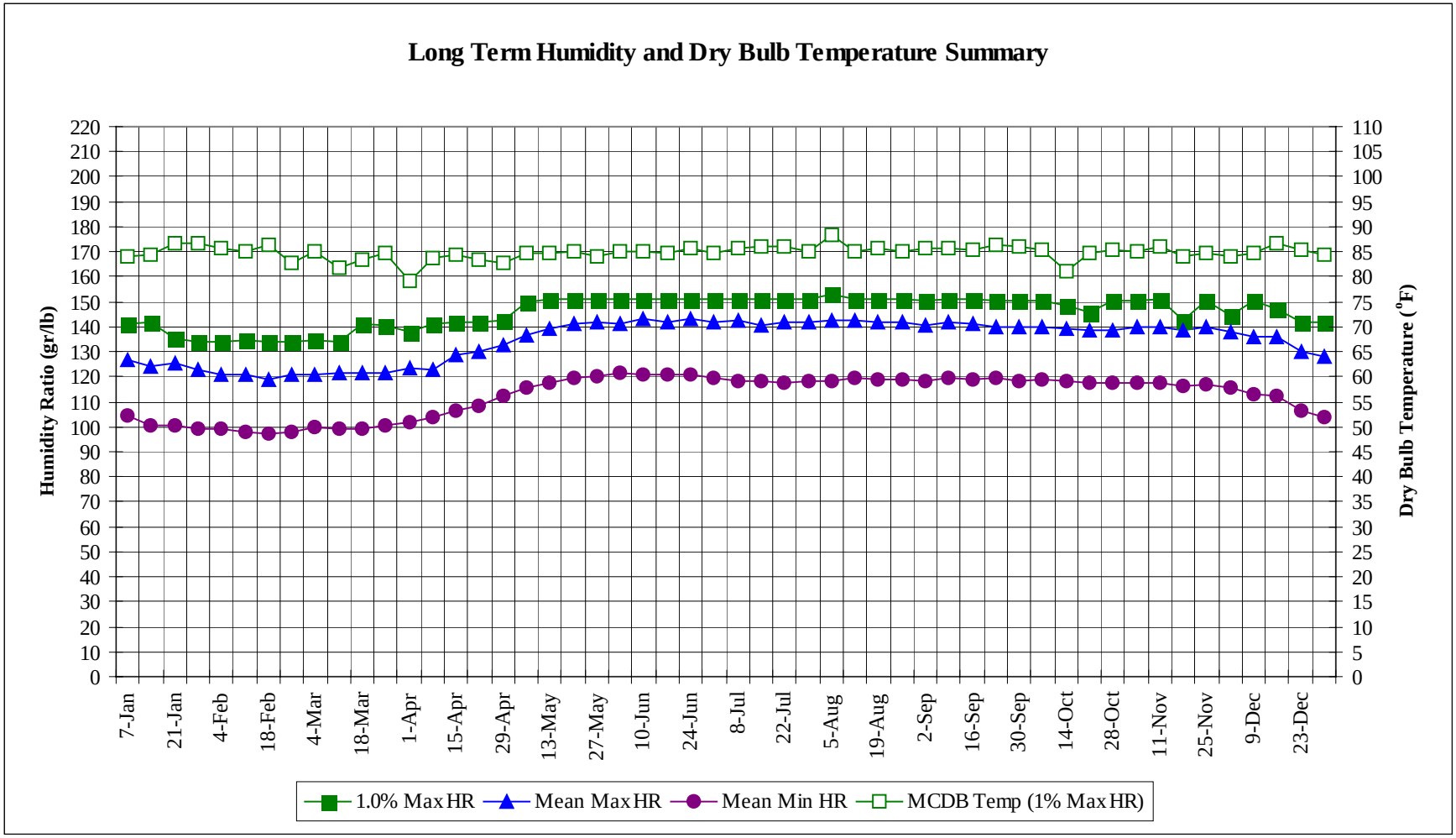
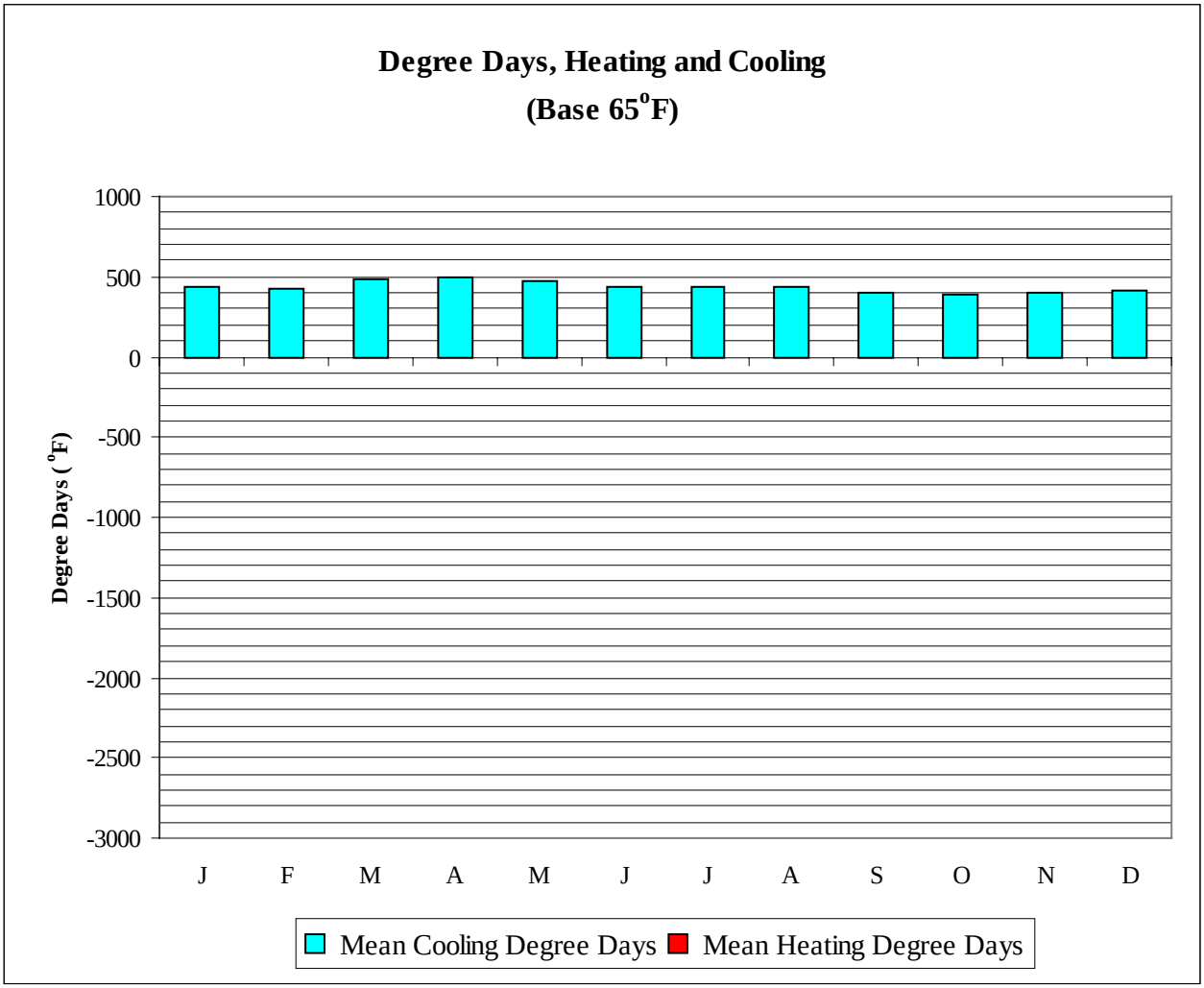


TOCUMEN PM WMO No. 787920

Long Term Dry Bulb Temperature and Humidity Summary

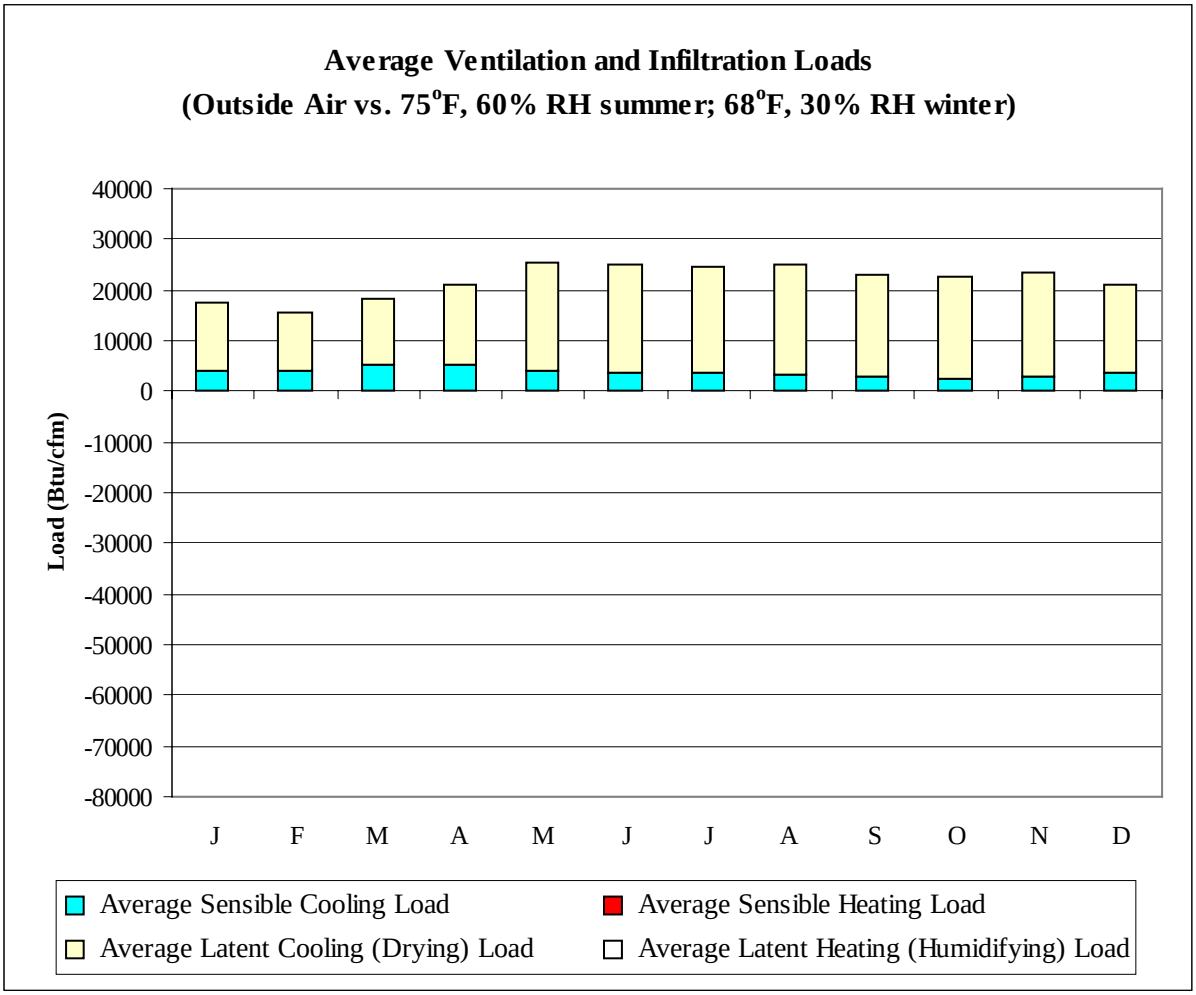
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	91.0	77.0	88.6	71.8	68.0	141.4	84.1	126.6	104.1
14-Jan	90.0	76.2	88.4	70.9	68.0	142.1	84.4	124.0	100.7
21-Jan	91.0	76.7	88.6	70.8	68.0	135.1	86.7	125.1	100.2
28-Jan	91.0	77.0	89.4	71.1	68.0	133.7	86.8	123.1	99.3
4-Feb	91.0	76.6	89.3	71.1	66.0	133.7	85.5	121.0	99.0
11-Feb	91.0	76.0	89.3	71.0	66.0	134.4	84.9	121.1	97.9
18-Feb	91.0	76.0	89.5	71.4	68.0	133.7	86.4	119.2	97.5
25-Feb	91.0	75.8	89.9	71.5	68.0	133.7	82.9	120.6	98.1
4-Mar	92.0	77.0	90.0	72.4	68.0	134.4	84.9	120.5	99.7
11-Mar	93.0	76.4	90.2	72.0	68.0	133.7	81.8	121.3	99.4
18-Mar	91.0	75.9	90.2	72.1	68.0	141.4	83.3	121.5	98.9
25-Mar	93.0	76.3	90.3	72.4	68.0	140.7	84.7	121.8	100.4
1-Apr	93.0	76.8	90.7	72.6	68.0	137.9	79.0	123.5	102.1
8-Apr	93.0	77.1	90.9	73.0	70.0	141.4	83.7	123.1	103.6
15-Apr	93.0	77.9	90.6	73.8	70.0	142.1	84.4	128.6	106.7
22-Apr	93.0	77.1	90.5	73.8	70.0	142.1	83.5	130.2	108.2
29-Apr	93.0	77.8	89.1	74.0	72.0	142.8	82.7	133.0	112.5
6-May	91.0	77.9	88.6	74.0	72.0	149.8	84.9	136.5	115.7
13-May	92.0	81.0	89.0	74.6	72.0	151.2	84.9	138.9	117.9
20-May	91.0	79.1	87.7	74.3	72.0	151.2	84.9	141.3	119.3
27-May	90.0	78.9	86.6	74.3	73.0	151.2	84.1	141.8	120.4
3-Jun	90.0	79.6	86.1	74.6	73.0	151.2	84.9	140.9	121.3
10-Jun	91.0	79.8	87.0	74.5	73.0	151.2	85.1	143.4	120.9
17-Jun	91.0	78.9	86.8	74.1	72.0	151.2	84.8	141.7	120.6
24-Jun	91.0	79.9	86.6	74.0	73.0	151.2	85.6	143.0	121.0
1-Jul	90.0	80.0	86.3	73.8	72.0	151.2	84.8	141.5	119.6
8-Jul	91.0	80.5	86.9	73.5	72.0	151.2	85.7	142.3	118.3
15-Jul	91.0	80.4	87.1	73.5	72.0	151.2	86.1	140.8	118.3
22-Jul	91.0	80.3	87.1	73.4	72.0	151.2	85.9	141.6	117.5
29-Jul	91.0	79.8	87.5	73.3	72.0	151.2	85.0	142.1	118.2
5-Aug	91.0	80.3	87.4	73.3	72.0	153.3	88.2	142.6	118.4
12-Aug	91.0	79.8	87.0	73.9	73.0	151.2	85.0	142.2	119.7
19-Aug	91.0	79.8	87.1	73.5	72.0	151.2	85.7	141.6	118.8
26-Aug	91.0	79.8	86.4	73.4	72.0	151.2	85.1	141.8	118.8
2-Sep	90.0	79.5	85.9	73.3	72.0	150.5	85.7	140.2	118.4
9-Sep	91.0	81.2	86.5	73.7	72.0	151.2	85.8	142.0	119.8
16-Sep	90.0	80.2	85.8	73.4	72.0	151.2	85.4	141.2	118.9
23-Sep	90.0	80.1	85.7	73.6	72.0	150.5	86.2	139.9	119.3
30-Sep	89.0	79.7	85.4	73.3	72.0	150.5	85.9	140.1	118.1
7-Oct	90.0	79.7	85.3	73.2	72.0	150.5	85.3	139.7	118.7
14-Oct	88.0	79.4	84.7	73.1	72.0	148.4	81.3	139.1	118.0
21-Oct	90.0	78.9	85.4	73.0	72.0	145.6	84.8	138.7	117.7
28-Oct	90.0	79.1	85.3	73.1	72.0	150.5	85.4	138.9	117.6
4-Nov	90.0	79.7	85.2	73.0	72.0	150.5	85.1	140.0	117.4
11-Nov	90.0	79.4	86.0	73.1	72.0	151.2	85.9	140.1	117.3
18-Nov	90.0	78.6	85.8	72.8	70.0	142.8	83.9	138.7	116.4
25-Nov	90.0	78.6	86.2	72.9	71.0	150.5	84.7	139.9	116.7
2-Dec	90.0	78.6	86.7	72.6	70.0	144.2	84.2	137.8	115.4
9-Dec	90.0	78.4	87.1	72.5	70.0	150.5	84.6	135.8	112.8
16-Dec	90.0	78.1	87.6	72.3	70.0	147.0	86.8	135.7	112.4
23-Dec	90.0	77.4	88.1	71.6	68.0	142.1	85.4	129.8	106.4
31-Dec	91.0	77.0	88.1	70.9	68.0	142.1	84.5	128.3	103.8

TOCUMEN PM WMO No. 787920



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	443	0
FEB	420	0
MAR	491	0
APR	493	0
MAY	469	0
JUN	432	0
JUL	434	0
AUG	434	0
SEP	401	0
OCT	385	0
NOV	399	0
DEC	419	0
ANN	5220	0

TOCUMEN PM WMO No. 787920

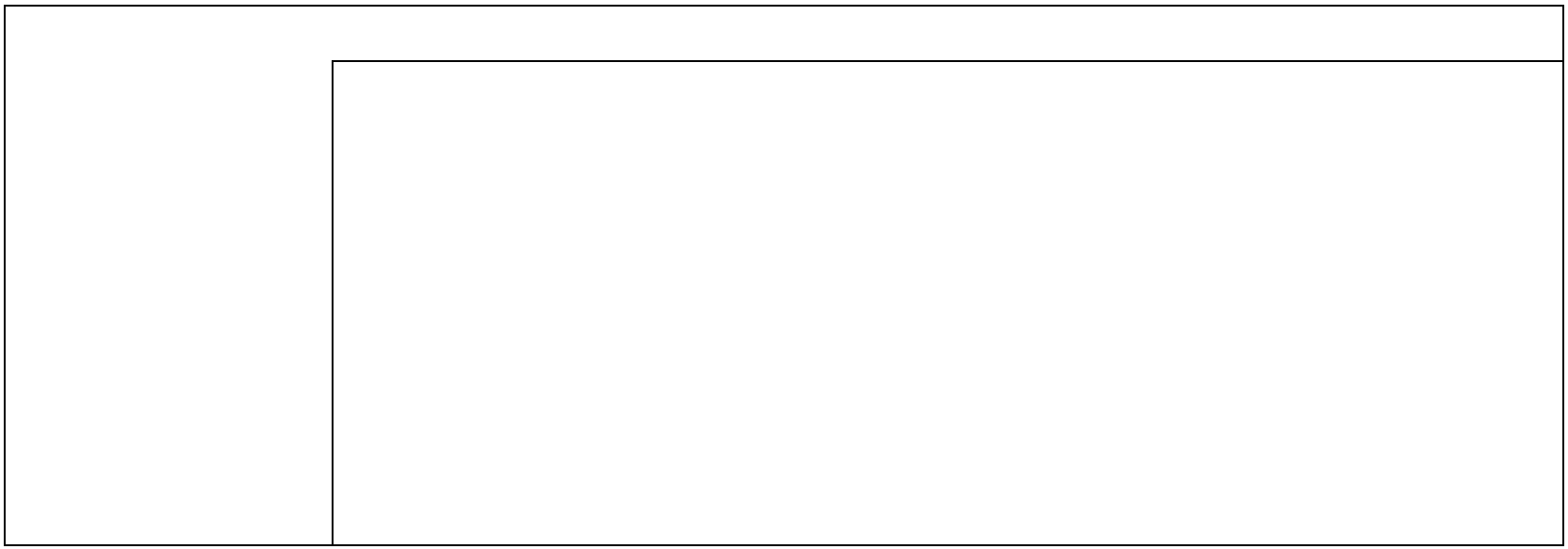


	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	4148	-9	13505	0
FEB	4187	-10	11370	0
MAR	5150	-7	13158	0
APR	5230	-2	15928	0
MAY	4262	0	21321	0
JUN	3595	0	21253	0
JUL	3601	0	20975	0
AUG	3466	0	21386	0
SEP	2994	0	19946	0
OCT	2606	0	20108	0
NOV	2936	0	20496	0
DEC	3562	-3	17516	0
ANN	45737	-31	216962	0

Average Annual Solar Radiation – Nearest Available Site

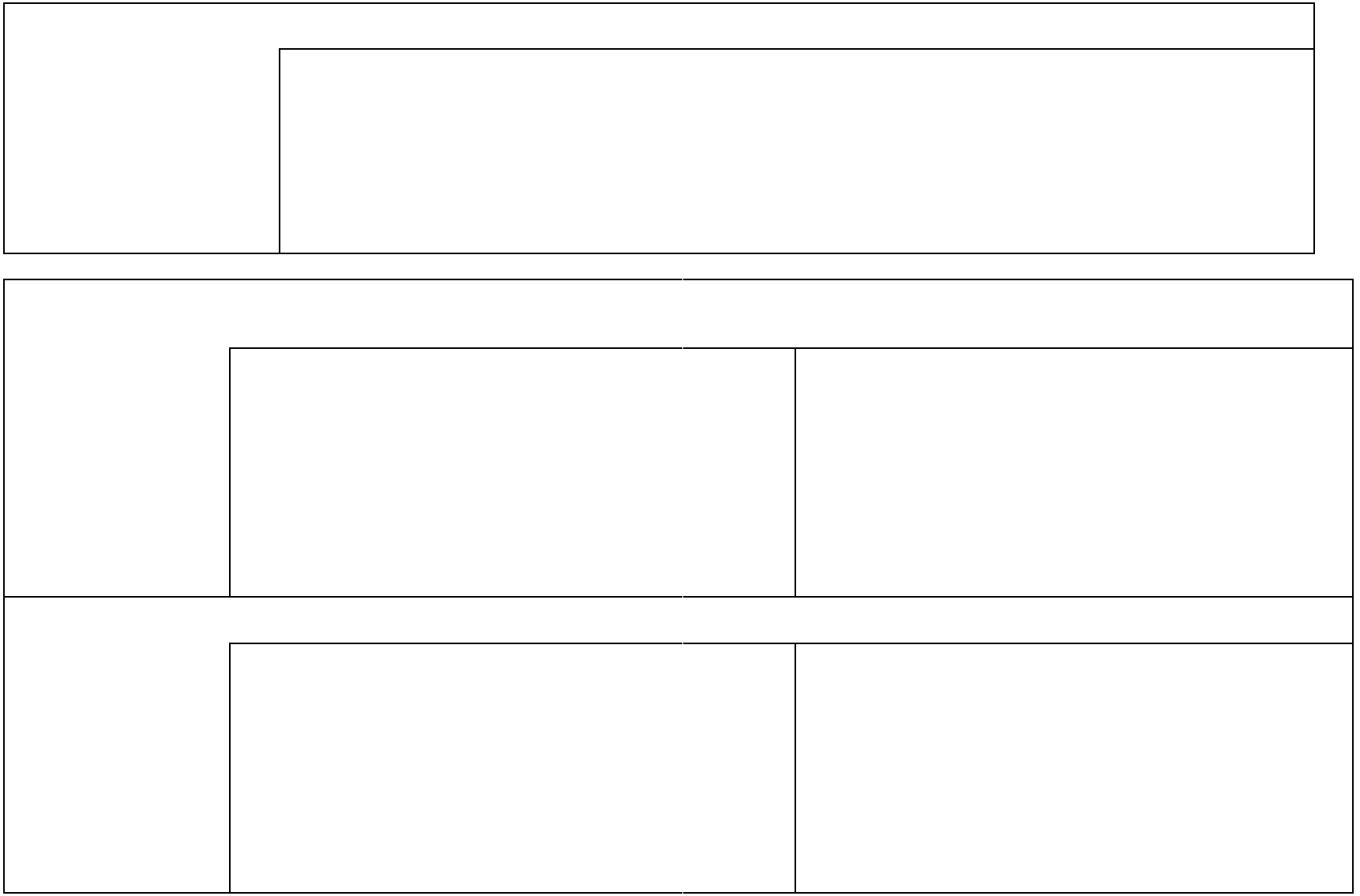
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

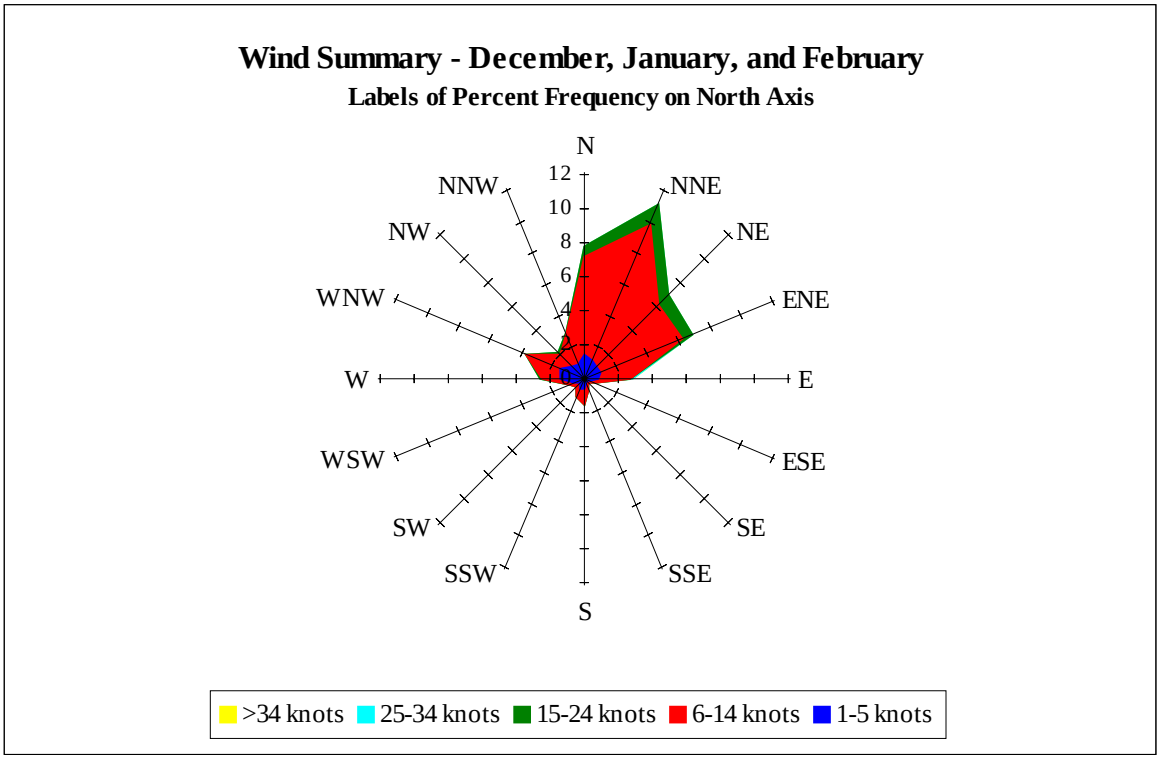
No Solar Radiation
Data Available



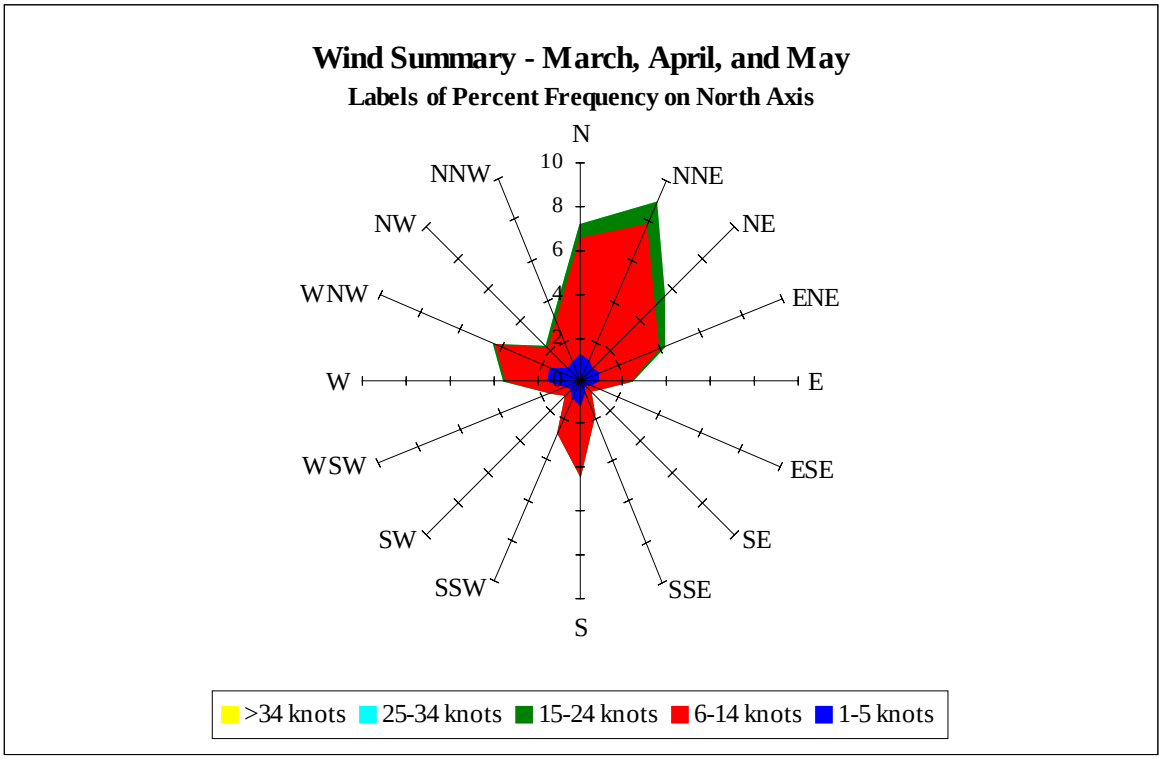
Average Annual Solar Heat and Illumination – Nearest Available Site

(Source: National Renewable Energy Laboratory, Golden CO, 1995)

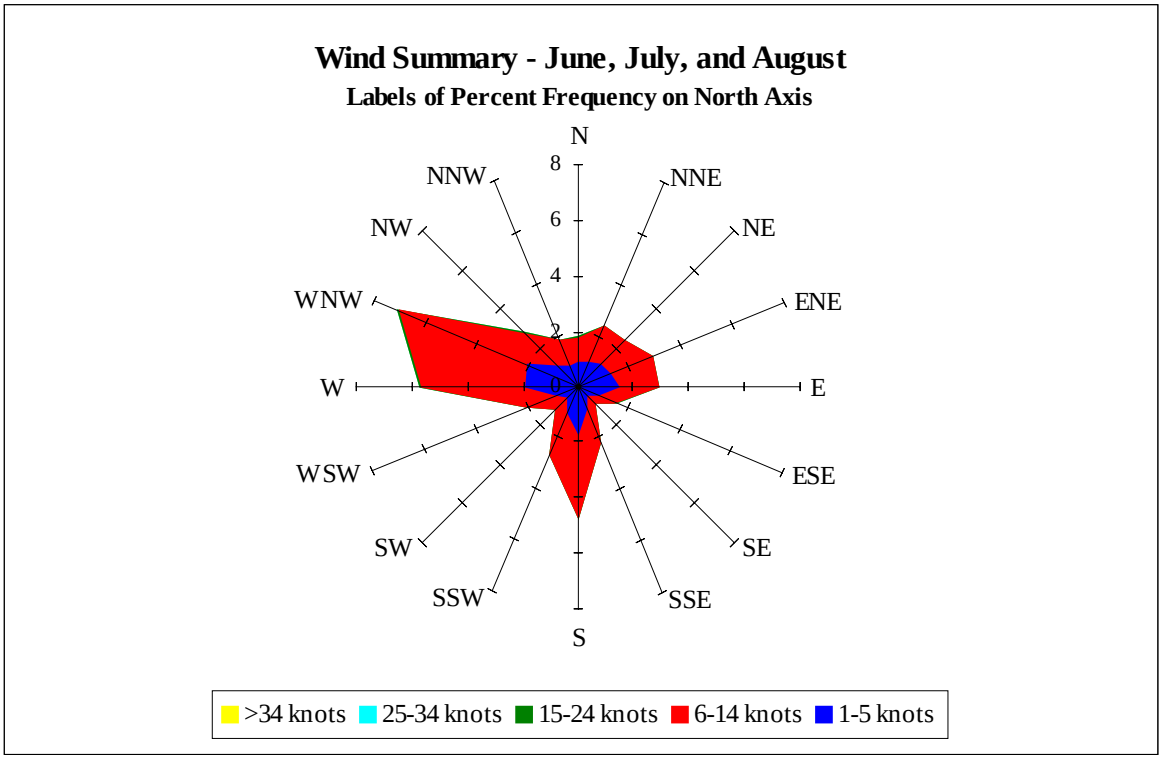




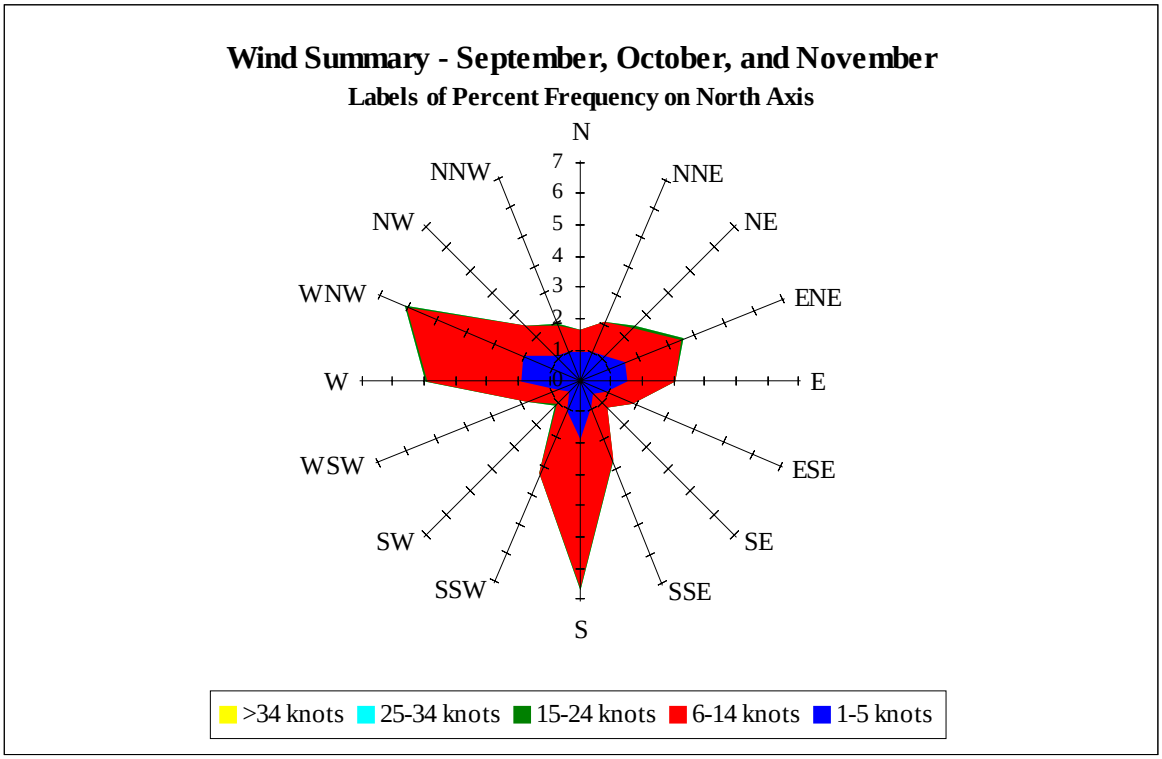
Percent Calm = 47.78



Percent Calm = 46.31



Percent Calm = 55.34



Percent Calm = 54.09